

REMARKS

Claims 1-32 are pending. Claims 13-22 and 24 have been withdrawn from consideration. Claims 1, 13 (withdrawn), and 23 are currently amended without surrendering claim scope and without adding new matter. Claims 1, 13 and 23 have been amended to remove the “non-magnetically” limitation, and add a limitation that said carrier contacts substantially the entire bottom substrate surface. Support for the amendments to independent claims 1, 13 and 23 may be found, for example, in Applicant’s FIG. 3, which shows carrier (14) contacting substantially the entire bottom surface of substrate 12, and in Applicant’s specification at page 8, lines 22-31. Applicant respectfully submits that the amendments to claims 1, 13 and 23 are fully supported by Applicant’s specification under 35 U.S.C. § 112, first paragraph.¹

After this Amendment, claims 1-32 remain pending. Applicant respectfully requests reconsideration and allowance of all pending claims of the application as currently amended, including withdrawn claims 13-22, in view of the following arguments.

Rejections under 35 U.S.C. § 112

Claims 1-12, 23 and 25-30 stand rejected under 35 USC § 112, first paragraph, as allegedly failing to comply with the written description requirement. Without waiving any arguments relative to the alleged introduction of new matter, Applicant respectfully submits that the present amendment to the claims, removing the “non-magnetically” limitation, renders the rejection moot. In summary, Applicant submits that the rejection of claims 1-12, 23 and 25-30 under 35 USC § 112, first paragraph, has been overcome, and that the rejection should be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 1-8, 31 and 32 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Hempel, Jr. (5,683,289) in view of Gurusamy et al. (6,361,423). Claims 9-12, 23 and 25-30 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Hempel, Jr. (5,683,289) in view of Gurusamy et al. (6,361,423) as applied to claim 1 above, and further in view of Sung (6,679,243). Applicant respectfully disagrees with the rejection of claim

¹ See *Ex parte Holt*, 19 USPQ2d 1211 (BPAI, 1991) (“an invention claimed need not be described *ipsis verbis* in the specification in order to satisfy the disclosure requirements of 35 U.S.C. § 112”).

31-32, and respectfully contends that Applicant's amendment to independent claims 1 and 23 renders moot the rejection of claims 1-12 and 24-30, which respectively depend thereon.

Applicant respectfully disagrees with the rejection of claims 31-32, at least because the Patent Office has failed to meet its burden of establishing a proper *prima facie* case of obviousness in view of the cited references.² A proper *prima facie* case of obviousness requires that the Office establish three facts:³

1. identification of a motivation to combine/modify the cited references;
2. a showing that the proposed combination provides a reasonable expectation of success; and
3. a teaching or suggestion of all of the claim limitations.

Applicants respectfully contend that the Patent Office has at least failed to properly provide a combination of prior art references that teaches or suggests all-elements of Applicants' claimed invention, as required by the "all-elements" rule.⁴

With respect to claims 31-32, the Patent Office agrees that the limitation "permanently affixed" in independent claim 31 is supported, but alleges that a "structure can be permanently affixed to another structure magnetically dependent on the strength of the magnetic force."⁵ Applicant respectfully contends that the Patent Office has failed to meet its burden of establishing that any of Hempel, Jr., Gurusamy et al. or Sung disclose, teach or suggest a carrier permanently affixed to the bottom surface of a substrate, as Applicant presently claims.

As a threshold matter, Applicant respectfully contends that the Patent Office has not properly met its burden of showing that magnets may be used to permanently affix a structure to another dependent on the strength of the magnetic force. If the Patent Office disagrees, then the Examiner is respectfully invited to provide, on the record, a reference that provides such a teaching or disclosure, citing with particularity to page and line number where such a teaching or disclosure is provided.

Furthermore, Applicant respectfully submits that it is irrelevant whether magnets can be used to permanently affix one structure to another. What is relevant is whether the cited

² See MPEP § 2142.

³ M.P.E.P. § 2143.

⁴ See *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81 (Fed. Cir. 1986).

combinations of references disclose, teach or suggest use of magnets, or other means, to permanently affix a carrier to the bottom surface of a substrate wherein said carrier comprises at least one of synthetic plastic or ceramic, as Applicant presently claims. Applicant respectfully submits that the Patent Office has failed to properly establish, on the record, that Hempel, Jr., Gurusamy et al. and/or Sung disclose, teach or suggest a carrier permanently affixed to the bottom surface of a substrate, as required to establish a proper *prima facie* case of obviousness.

Furthermore, while use of an adhesive tape to non-permanently affix an end effector to a lower substrate surface may be conventional with Hempel, Jr.'s end effector (FIG. 3) wherein the slurry passes through openings 26 of end effector 20 into end effector recess 18, such disclosure cannot make obvious Applicant's presently claimed carrier permanently affixed to the bottom surface of a substrate without creating a recess or void between the carrier and the bottom surface of the substrate that would allow slurry to penetrate and weaken an adhesive joint.⁶ In fact, Applicant respectfully contends that Hempel, Jr. expressly teaches away from Applicant's use of an adhesive to permanently affix the alleged carrier (end effector 20) to the bottom surface of a substrate (recess face 368).⁷

In addition, Gurusamy et al. expressly discloses that the alleged carrier is not permanently affixed to the alleged substrate in each instance, and thus expressly teach away from Applicant's claimed invention. Gurusamy et al. thus admits that the alleged carrier (disk holding element 158) is not permanently affixed to the alleged substrate (disk 82), and further states that "[a] further advantage is provided by a disk holding element which is made readily removable from the backing element and from the disk."⁸ Thus, even if, *arguendo*, Hempel, Jr. were considered as disclosing a carrier permanently affixed to the bottom surface of a substrate, there would be no proper motivation for one of ordinary skill in the art to seek to substitute the removable plastic carrier of Gurusamy et al. for the allegedly non-removable rigid metal carrier of Hempel, Jr., as such a substitution would defeat Hempel, Jr.'s rigid mounting of the end effector to achieve the stated advantages of "even wear of the end effector, and more uniform conditioning of the CMP

⁵ Office Action dated January 8, 2008, p. 6, ¶ 7.

⁶ See US Pat. No. 5,683,289, col. 5, lines 1-7.

⁷ *Id.*, col. 3, lines 25-30; and col. 5, lines 26-29.

⁸ US Pat. No. 6,361,423 B2, col. 5, lines 60-63.

polish pad.”⁹ For at least these reasons, reconsideration and withdrawal of the rejection of claims 31-32 is respectfully requested.

With respect to independent claims 1, 13 (withdrawn) and 23, from which claims 2-12, 14-22, and 24-30 respectively depend, Applicant has presently amended the independent claims to clarify that the carrier contacts substantially the entire bottom substrate surface. Applicant respectfully contends that these amendments render the rejections of claims 1-12 and 23-30 moot, because Hempel, Jr. (*see e.g.* FIG. 3, end effector recess 18) and Gurusamy et al. (*see e.g.* FIG. 4, downwardly extending recess 220) each require that there be a recess formed between the carrier and the substrate to facilitate passage of the slurry, and thus, Hempel, Jr. and Gurusamy et al. do not disclose that the carrier contacts substantially the entire bottom substrate surface and therefore cannot make obvious Applicant’s presently claimed invention.

Hempel, Jr. expressly discloses that “[b]ase 16 includes end effector recess 18 for receiving end effector 20. The spacer mechanism for the present embodiment may be spacers 22 fit in end effector recess 18 and evenly **space end effector 20 from the face of recess 18.**”¹⁰ Further, “[a]s conditioning end effector 10 conditions CMP polish pad 40, slurry 38 passes through opening 26 of end effector 20.”¹¹ Gurusamy et al. expressly discloses that “[t]he rotation of the disk may induce a flow 248 of the polishing slurry longitudinally upward from the lower surface 84 of the disk, through an array of holes 242 in the disk, and radially outward along the upper surface of the disk through the channels 223.”¹² Thus, Applicant respectfully submits that the alleged carrier of Hempel, Jr. and Gurusamy et al. cannot contact substantially the entire bottom substrate surface, as Applicant presently claims.

Furthermore, Applicant respectfully contends that both Hempel, Jr. and Gurusamy et al. disclose that such a recess between the alleged substrate and the alleged carrier is essential in order to achieve the benefits associated with circulation of the slurry through openings in the faces of the respective end effectors. Gurusamy et al. expressly discloses that “[t]his flow of the

⁹ *Id.*, col. 3, lines 28-30.

¹⁰ US Pat. No. 5,683,289, col. 3, lines 59-63 (*emphasis added*).

¹¹ *Id.*, col. 4, lines 24-26.

¹² US 6,361,423 B2, col. 12, lines 29-35.

slurry may increase the effectiveness of conditioning by helping to evacuate material from the pad surface.”¹³ Hempel, Jr. expressly discloses:

[a]nother technical advantage that the present invention provides is a practical solution to the problem [of] slurry and semiconductor device particles forming deposits in openings of the end effector. The CMP polish pad end effector of the present invention permits complete flushing of the end effector openings. This cleans out potential slurry and particle deposits from the end effector openings. The result is an always fresh and clean end effector surface for conditioning the CMP pad.¹⁴

Thus, Applicant respectfully submits that one of ordinary skill in the art would at least not be properly motivated to modify Hempel, Jr. and/or Gurusamy et al. to obtain Applicant’s presently claimed carrier that contacts substantially the entire bottom substrate surface, because to do so would eliminate the beneficial effects of maintaining a recess between the alleged carrier and the alleged disk (substrate) expressly disclosed by Hempel, Jr. and Gurusamy et al.

In addition to the foregoing, Applicant submits that a dependent claim should be allowed when its parent claim is allowed.¹⁵ Claims 2-12, 14-22 (withdrawn), 24-30, and 32 respectively depend from independent claims 1, 13 (withdrawn), 23, and 31. Accordingly, when independent claims 1, 13, 23, and 31 are allowed, all claims depending therefrom should also be allowed. For at least the foregoing reasons, the rejection of claims 1-8, 31 and 32 under 35 USC § 103(a) as allegedly being unpatentable over Hempel, Jr. in view of Gurusamy et al., and claims 9-12, 23 and 25-30 as allegedly being unpatentable over Hempel, Jr. in view of Gurusamy et al. as applied to claim 1 above, and further in view of Sung, has been overcome and should be withdrawn. Other reasons for withdrawal of the rejections also exist.

¹³ *Id.*, col. 12, lines 36-38.

¹⁴ US Pat. No. 5,683,289, col. 3, lines 11-19.

¹⁵ *In re McCarn*, 101 USPQ 411 (CCPA 1954).

CONCLUSION

For all of the foregoing reasons, the Patent Office has not met its burden of showing that the prior art makes obvious Applicant's presently claimed invention. The rejection of claims 1-32 under 35 U.S.C. § 103(a) as purportedly obvious over the cited combinations of references is unwarranted in part, and overcome in part, and should be withdrawn. Applicant also respectfully requests reconsideration and withdrawal of the rejection of claims 1-12, 23, and 25-30 for alleged failure to apply with the written description requirement under 35 U.S.C. § 112, first paragraph, in view of the present amendments to the claims. In view of the above, it is respectfully submitted that the application is in condition for allowance. Applicant respectfully requests examination and rejoinder of claims 13-22 and 24 under 37 CFR 1.104, as depending from or otherwise requiring all limitations of allowable independent claims 1 and 23, respectively. Allowance of all pending claims at an early date is solicited. The Examiner is invited to contact Applicant's attorney to resolve any remaining questions.

Respectfully submitted,

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